



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,826	08/04/2003	Tatsuhiko Kiuchi	WAKAB70.002AUS	5265

20995 7590 04/03/2006

KNOBBE MARTENS OLSON & BEAR LLP  
2040 MAIN STREET  
FOURTEENTH FLOOR  
IRVINE, CA 92614

EXAMINER
----------

DUONG, THANH P

ART UNIT	PAPER NUMBER
----------	--------------

1764

DATE MAILED: 04/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/633,826	<b>Applicant(s)</b> KIUCHI ET AL.	
	<b>Examiner</b> Tom P. Duong	<b>Art Unit</b> 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 November 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-5 and 7-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-5 and 7-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 3-5, and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boucot et (5,755,841). Regarding claim 1, Boucot et al., in Fig. 3, discloses reformer for obtaining a synthesis gas comprising: a single reactor vessel (1) including (i) a catalyst layer (4) for promoting a steam reforming reaction and shift reaction, and (ii) a partial oxidation part disposed upstream of the catalyst layer for carrying out a partial oxidation reaction (Col. 2, lines 14-17), an oxidizing agent feed pipe (3, 6) for feeding an oxidizing agent into the vessel upstream of the catalyst layer, said oxidizing agent feed pipe being disposed coaxially with the vessel, and a carbon-containing gaseous raw material feed pipe (2,7) for feeding the carbon-containing gaseous raw material into the vessel (1) said pipes separately opening into the vessel (Fig. 3), wherein the central axis of the oxidizing agent feed pipe (3, 6) and the central axis of the carbon-containing gaseous raw material feed pipe (2, 7) intersect with each other downstream of the outlet of the oxidizing agent feed pipe (3, 6) in an oxidizing agent flowing direction and downstream of the outlet of the carbon-containing raw material feed pipe (34) in a carbon-containing raw material flowing direction (Fig. 3).

Art Unit: 1764

Boucot discloses the raw material feed pipes (2) and oxidizing feed (3) are axially intersecting with each other upstream of the catalyst layer (4) but is silent with respect to the pipes (2,3) are axially intersecting with each other at an angle of 80° to 100°. It would have been an obvious matter of design choice to install the raw material feed pipe intersecting with the oxidizing agent feed pipe by intersecting each other at an angle of 80° to 100° or any other degrees, since such configuration would not have modified the operation of the device. See *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950). Regarding claim 5, Boucot et al., in Fig. 3, discloses a method for obtaining a synthesis gas comprising: feeding an oxidizing agent (3, 6) in an oxidizing agent flowing direction into a partial oxidation part (Col. 2, lines 14-17) of a reaction vessel where a partial oxidation reaction is carried out; feeding a carbon-containing gaseous raw material (2,7) in a carbon-containing gaseous raw material flowing direction into the vessel (1) separately from the oxidizing agent to partially oxidize the carbon-containing raw material; wherein the oxidizing agent flowing direction and the carbon-containing gaseous raw material flowing direction intersect with each other inside the vessel to contact the oxidizing agent and the carbon-containing raw material (Fig. 3)., and steam reforming the oxidized raw material in the vessel in the presence of a catalyst for promoting a steam reforming and a shift reaction (Fig. 3)., wherein the oxidizing agent flowing direction (3, 6) and the carbon-containing gaseous raw material flowing direction (2,7) intersect but is silent with respect to intersecting each other at an angle of 80 to 100°. It would have been an obvious matter of design choice to install the raw material feed pipe intersecting with the oxidizing agent feed pipe by intersecting

Art Unit: 1764

each other at an angle of 80° to 100° or any other degrees, since such configuration would not have modified the operation of the device. See *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950). Regarding claims 3 and 7, Boucot et al. discloses all of the claims limitations as set forth above, but the reference does not explicitly disclose any specific value for the distance from the outlet-end of the oxidizing agent feed pipe to an intersection point where the central axis of the oxidizing agent feed pipe and the central axis of the carbon-containing raw material feed pipe intersect with each other. The specific dimensions of the reformer are not considered to confer patentability to the claims. As the reformer operation efficiency and cost of construction are variables that can be modified by adjusting reformer dimensions, the reformer dimensions would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the dimensions cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the reformer dimensions in the reformer of Boucot et al. to obtain the desired operation efficiency and cost of construction (*In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (operation efficiency and cost of construction, 105 USPQ 223). Further the examiner notes that, it would have been obvious to change the reformer dimensions, since such modifications would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of

ordinary skill in the art. *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955).

Regarding limitations recited in claim 3 which are directed to a manner of operating disclosed reformer, the examiner notes that neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP 2114 and 2115. Further, the examiner notes that process limitations, such as reactant velocities, do not have patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability' of the apparatus claim." Regarding claim 4, Boucot et al. discloses all of the claim limitations as set forth above. Additionally, while the reference does not explicitly disclose any specific shape for the oxidizing agent feed pipe, said reactor comprises feed pipes that appears to be the same or an obvious variant of oxidizing agent the feed pipe set forth in the instant claims. Regarding claim 8, Boucot et al. discloses all of the claim limitations as set forth above. Additionally, while the reference does not explicitly disclose any specific shape for the oxidizing agent feed pipe, said reactor comprises feed pipes that appears to be the same as, or an obvious variant of oxidizing agent the feed pipe set forth in the instant claim. Regarding claims 9 and 10, the recitation of feeding only the oxidizing agent and the carbon-containing gaseous raw material into part of the oxidation vessel does not exclude additional, unrecited elements or method steps. Note, the transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and does not exclude

additional, unrecited elements or method steps. See, e.g., > *Mars Inc. v. H.J. Heinz Co.*, 377 F.3d 1369, 1376, 71 USPQ2d 1837, 1843 (Fed. Cir. 2004) ("like the term comprising,' the terms containing' and mixture' are open-ended."); < *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 327 F.3d 1364, 1368, 66 USPQ2d 1631, 1634 (Fed. Cir. 2003) ("The transition comprising in a method claim indicates that the claim is open-ended and allows for additional steps."); *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Cir. 1997). See MPEP 2111.03.

### ***Response to Arguments***

Applicant's arguments filed 11/26/04 have been fully considered but they are not persuasive. (1) Applicant's argument that "the oxidizing agent feed pipe (3) is angled with respect to the axis of the vessel, so that an inner wall where the flow of the oxidizing agent hit is likely to form a high temperature area, thereby causing high temperature corrosion. " Examiner respectfully disagrees, it would have been an obvious matter of design choice to install the raw material feed pipe intersecting with the oxidizing agent feed pipe by intersecting each other at an angle of 80° to 100° or any other degrees, since such configuration would not have modified the operation of the device. See *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950). Furthermore, it would have been a *prima facie* obvious to install the oxidizing agent feed pipe and the carbon-containing gaseous raw material feed pipe with an intersecting angle of 80° to 100° to obtain an optimum operating condition such as improving proper mixing of the oxidant and the fuel, and providing stable combustion (Col. 3, lines 40-42), which

Art Unit: 1764

essentially increases the efficiency for partial oxidation reaction. (2) The argument with respect to newly added claims 9 and 10 does not exclude additional, unrecited elements or method steps. Note, the transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See, e.g., > *Mars Inc. v. H.J. Heinz Co.*, 377 F.3d 1369, 1376, 71 USPQ2d 1837, 1843 (Fed. Cir. 2004) ("like the term comprising, the terms containing and mixture are open-ended.").< *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 327 F.3d 1364, 1368, 66 USPQ2d 1631, 1634 (Fed. Cir. 2003) ("The transition comprising in a method claim indicates that the claim is open-ended and allows for additional steps."); *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Cir. 1997). See MPEP 2111.03.

### **Conclusion**

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any



Art Unit: 1764

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom P. Duong whose telephone number is (571) 272-2794. The examiner can normally be reached on 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tom Duong  
March 21, 2006

TD



Glenn Caldarola  
Supervisory Patent Examiner  
Technology Center 1700